

REMARKS

Allowable Subject Matter

Applicants acknowledge with appreciation that claims 4-11 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Claim Rejections - 35 U.S.C. §103

Claims 1-3 and 12 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over United States Patent No. 6,536,428 to Smith in view of Japan No. 11-323899 to Nakamura. Reconsideration and withdrawal of this rejection is requested.

Smith discloses a co-axial breathing tube for humidified gases ventilation having both inspiratory and expiratory pathways. A spirally wound heater wire 12 is disposed between the internal and external conduit in the inspiratory gases pathway for the heating of humid inspiratory gases delivered to a patient.

Nakamura discloses an apparatus used for conveying waste water from beneath a pavement slab, and as such, belongs to a very different heavy engineering field. The apparatus includes a large bundle of very small diameter glass fibers wrapped in an outer permeable sheath. The apparatus also includes a heater 38 within the fiber bundle to prevent freezing. The objective of Nakamura is to extract waste water away from under a pavement slab by conveying the liquid from one end to the other. The structure of Nakamura is optimized for this purpose and includes a large number of glass fibers.

In contrast, the objective of the invention claimed in claim 1 is to provide a heater in a respiratory conduit primarily for heating a humidified breathing gases flow, while reducing the

formation of pooled condensate. This is achieved with an **elongate** heating wire covered with a hydrophilic layer to attract any condensed water forming in the conduit towards the heater wire. The hydrophilic attraction binds the water to the heater wire and improves re-evaporation.

The object of the present invention is to **attract** water to the heater wire and not to **convey** it from one place to another as taught by Nakamura. Applicants submit that one of ordinary skill in the art would not look to Nakamura, which teaches a method of conveying fluid from one place to another, when trying to simply attract it. In the humidified breathing gas art, the aim is to keep the water vaporized rather than condense it and then convey it elsewhere (particularly in the inspiratory arm). Applicants submit that one of ordinary skill in the art would recognize that the primary function of Nakamura is to convey fluid and the fact that the structure also includes a heater (to prevent freezing) is a secondary function (e.g. to ensure that the water is in liquid form so that it can be conveyed away from under the pavement slab). Certainly, Nakamura does not teach a structure for heating *per se*. Even less does Nakamura teach a structure for heating a flow of gas within which the structure is located. As a result, one of ordinary skill in the art would not find it obvious to combine the teaching of Nakamura with Smith as alleged by the Examiner.

Further, Applicants submit that even if Smith and Nakamura would be combined by one of ordinary skill in the art, such a combination does not result in the claimed invention. In particular, neither Smith nor Nakamura discloses an **elongate** heater wire within a conduit as required by claim 1. The heater wire 12 of Smith is a **spiral** heater wire that is wrapped around the inner tube. As a result, the heater wire is not **elongate** as defined by the *Merriam-Webster Dictionary* to mean: "stretched out" (the Dictionary definition is enclosed).

Still further, Applicants submit that the apparatus of Nakamura is unsuitable to perform the function of the present invention, being twofold:

1. To heat the breathing gases flowing in the conduit; and
2. To re-evaporate any condensed water in contact with the heater wire.

The structure of Nakamura is not designed for heating a gas flow and includes a permeable sheath 27 wrapped around the thick layer of glass fibers. The heating element itself is buried deep within the glass fibers and under the outer permeable layer. As a result, the structure is not suited to heating a gases flow, as is the primary purpose of the heater of the present invention. This is a further reason that one of ordinary skill in the art would not find it obvious to combine the teaching of Nakamura with Smith and arrive at the present invention, i.e., the resulting structure of Smith combined with Nakamura would not achieve the desired result.

This teaching and purpose of the hydrophilic layer of Nakamura is quite different to the claimed invention. One of ordinary skill in the art of respiratory conduits would not actively look at or apply the teaching of Nakamura because it is from a different field and teaches something quite different to that of the claimed invention.

Therefore, Applicants submit that the invention defined in claim 1 is not rendered obvious by Smith in view of Nakamura. Reconsideration and withdrawal of the rejection and allowance is requested.

Claims 2, 3 and 12 are dependent upon claim 1 which Applicants submit is allowable. Therefore, Applicants submit that claims 2, 3 and 12 are allowable. Reconsideration and allowance is requested.

Terminal Disclaimer

In the Office Action dated March 22, 2007, the Examiner stated that the “terminal disclaimer filed on December 29th, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of October 14, 2003 has been reviewed and accepted.” This Terminal Disclaimer relates to United States Patent No. 6,662,802. Applicants note that the ‘802 patent expires on June 21, 2021 (Applicants do not believe that the ‘802 patent itself is subject to a Terminal Disclaimer). Therefore, Applicants are unsure as to why the Examiner asserts an “October 14, 2003” date, and *again* requests clarification as to the term of any patent granted on this application.

Information Disclosure Statement

Applicants *again* acknowledge receipt of the partially initialed form in the Office Action dated October 2, 2006 relating to the Information Disclosure Statement filed on December 3, 2003. Applicants again note that Sheet 2 of 2 of the Information Disclosure Statement filed on December 3, 2003 was returned with the Office Action, but was not initialed. Applicants *again* request confirmation of consideration of these references by return of the initialed Sheet 2 of 2.

Should the Examiner have any questions regarding this Amendment, the Examiner is invited to contact one of the undersigned attorneys at (312) 985-5900.

Respectfully submitted,

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